

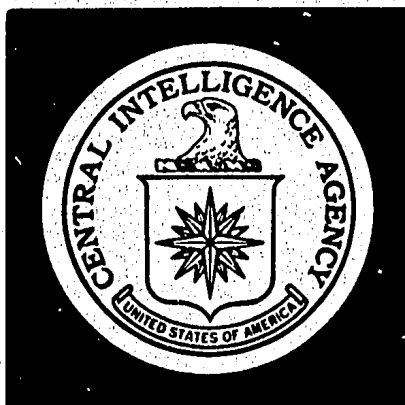
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**DIRECTORATE OF
INTELLIGENCE**

Intelligence Memorandum

International Finance Series No. 32

*A Model To Predict Exchange Rate Changes
Needed To Reach Trade Balance Targets*

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ER IM 71-208
October 1971

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
October 1971

INTELLIGENCE MEMORANDUM

**A MODEL TO PREDICT EXCHANGE RATE CHANGES
NEEDED TO REACH TRADE BALANCE TARGETS**

Introduction

1. The United States is seeking to restore balance to its international payments while creating a new framework for continued international economic expansion. Although some improvement is expected to result from a more equitable sharing of the West's defense burden and from removing some impediments to US exports, the greatest improvement is to arise from a major realignment of foreign exchange parities.

2. Various world-wide trade-balance changes and the new parities that could bring them about have been suggested. The most notable is that of the International Monetary Fund (IMF), which allegedly would lead to an \$8 billion annual improvement in the US trade account.

3. This memorandum uses a trade-flow model similar to the one developed and employed by the IMF. The mix of parity changes required to achieve various assumed patterns of trade-balance changes is considered. In the Appendix, the model itself is briefly described, and the sensitivity of the model to the assumptions made and its predictive accuracy are assessed.

4. It should be noted at the outset, however, that both the IMF model and our version of it have severe limitations. In our judgment the results predicted by the model should be used with great care and ought not to be a major underpinning for serious negotiations for world-wide parity changes.

Note: This memorandum was prepared by the Office of Economic Research.

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5. The IMF, hoping to facilitate an early agreement on new exchange rates, has suggested a new set of currency parities⁽¹⁾ (see Table 1). According to the IMF, the new parities would, if accepted by the world's wealthy nations, lead to an \$8 billion swing in the US merchandise trade account as compared with the 1971 projections, adjusted for the impact of the business cycle, and before imposition of the steps announced by the President on 15 August. This \$8 billion improvement in the US trade account would, of course, exactly equal the sum of the changes in the trade balances of the other countries of the world, with the bulk of the improvement coming at the expense of West Germany (\$2,800 million) and Japan (\$2,700 million).

6. The IMF, working back from a suggested set of trade-balance changes to a recommended mix of parity changes, employed a trade-flow model developed by its staff. The basic structure of the model has been published and trade data similar to those employed by the Fund are readily available. However, various refinements that have recently been made in the model by the IMF, and the assumptions made about the model's parameters, indicating the strength of the causal linkages between price and income changes and trade flows, can only be guessed.

7. We have developed a trade-flow model with the same basic structure as the model used by the Fund's staff, which yields quite similar results when certain reasonable and customary assumptions are made about the parameter values.⁽²⁾ Using the trade-balance changes suggested by the Fund, we have derived a corresponding set of parity changes, which differs from the mix of parity changes recommended by the IMF by no more than 2.6 percentage points for any country (see Table 1). The differences between the two results can be attributed to differences in refinement, in the assumptions made about parameter values, in the trade balance targets employed for the smaller countries and, perhaps, in the trade data used.⁽³⁾

1. The IMF has made several suggestions for new currency parities, all of which are quite similar. The proposal discussed here is a representative sample from this larger set. All currency parity changes are changes from the pre - May 1971 parities, calculated on the basis of US cents per unit of local currency.

2. The model is described and the parameter assumptions indicated in the Appendix.

3. Only the trade-balance targets employed by the IMF for nine of the 15 most wealthy countries and the rest of the world were known. The most recent variation of the IMF model - not yet described in the literature - also may employ more recent trade data than the CIA model.

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Table 1
International Monetary Fund Data and Similar CIA Results

	<u>International Monetary Fund Data</u>		<u>CIA Results</u>
	Required Parity Changes (in Percent from Pre - May 1971 Parities)	Target for Change in the Trade Balance (Million US \$)	Required Parity Changes to Achieve Targeted Changes in the Trade Balance (in Percent from Pre - May 1971 Parities)
Austria a/		-150	
Belgium-Luxembourg	10.0	-500	12.6
Canada	12.1	-1,500	10.9
Denmark a/		320	
France	7.3	500	6.5
Italy	9.4	-300	8.9
Japan	15.0	-2,700	15.6
Netherlands	7.3	300	5.0
Norway a/		0	
Sweden a/		80	
Switzerland a/		-850	
United Kingdom	7.2	100	6.7
West Germany	13.4	-2,800	12.5
Rest of the world a/		-500	
United States	0	8,000	0

a. Countries for which equivalent IMF targets for trade balance changes are unavailable. Targets indicated were assumed.

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8. The CIA trade-flow model, and the IMF model upon which it is based, can be used to forecast the effect of a large number of exchange-rate changes on the pattern of trade balances. The models are sensitive, however, to the assumptions made about the parameter values - that is, the results may vary greatly if alternative parameter values are chosen - and the predictive accuracy of both models appears to be low (see the Appendix). Extreme caution, therefore, should be exercised if these models are used for policy purposes, and the models' results should be considered merely indicative of the parity changes required to achieve certain trade balance targets.

Alternative Trade Balance Targets

9. We consider two alternative groups of targets for trade balance changes. The first group corresponds roughly to what some other nations of the world have suggested as reasonable targets for changes in the merchandise trade accounts. The second group approximates the US position on desired trade balance changes.

10. The first group of trade balance targets has two variants, which imply improvements of \$5.2 billion and \$6.4 billion, respectively, in the US trade balance, as compared with the cyclically adjusted pre - 15 August forecast for 1971.

In the first variant - case 1a - the target current account balance is equal to one-half of that country's 1975 current account goal (see the third column of data in Table 2).

In the second variant - case 1b - each country's basic balance⁽⁴⁾ is equal to zero (see Table 2, the second column).

In both variants the change in the US trade balance is treated as a residual and the current account balance of the rest of the world is assumed to decline by \$500 million.⁽⁵⁾

4. *The basic balance, considered by many to be the most accurate measure of a country's underlying balance-of-payments position, is equal to the balance on current account plus long-term capital.*

5. *In 1970 the current account surplus of the OECD countries with the rest of the world - including the Communist bloc and the less developed countries - increased by about \$2.5 billion. Although the surplus will probably increase in the future, particularly as the level of economic assistance grows, it is unlikely to experience such a substantial increase in 1971.*

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Table 2
OECD Cyclically Adjusted Balance-of-Payments Forecast

	Million US \$		
	1971 Current Account <u>a/</u>	1971 Basic Balance <u>b/</u>	One-Half of the 1975 Current Account Goal, as Reported to the OECD
Belgium-Luxembourg	300	-20	150
Canada	250	1,120	-250
France	750	1,300	750
Italy	1,050	-130	530
Japan	4,000	2,520	1,880
Netherlands	0	560	250
United Kingdom	1,100	-210	550
West Germany	1,200	190	730

a. Including official transfers.

b. Assuming that long-term capital flows in 1971 equal the flows recorded in 1970.

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11. The second group of trade balance targets also has two variants, both of which include a \$10 billion improvement in the US merchandise trade account, as compared with the cyclically adjusted, pre - 15 August forecasted value.

In both cases the additional improvement in the US trade balance is distributed to other countries' trade accounts in proportion to each country's international reserves on 1 January 1971. Thus: in case 2a, the additional improvement that must be redistributed is \$10 billion (the US target) minus \$5.2 billion (the improvement in case 1a), and in case 2b, it is \$10 billion minus \$6.4 billion (the improvement in case 1b).

In both variants the current account balance of the rest of the world is assumed to decline by \$1 billion.

12. The trade balance changes in each of these four cases, from the cyclically adjusted pre - 15 August predictions for 1971, are shown in Table 3 by country.

13. Using the four targets for changes in the merchandise-trade account, we have derived a corresponding set of required parity changes (see Table 4). These parity changes indicate the level by which other countries' currencies would have had to appreciate from their pre - May 1971 parities, if their merchandise trade balances were to shift by the targeted amounts.⁽⁶⁾

14. The change in the US parity has been set equal to zero in all four cases, implying no change in the official gold price. If the United States were to devalue relative to gold or some other numeraire, say by 5%, then the amount by which other countries would have to appreciate relative to that same numeraire would decline by an equal number of percentage points.⁽⁷⁾

15. The parity changes required in cases 1a and 1b on the average are similar to the changes in currency values that have already taken place through the devaluation of the Swiss franc and Austrian schilling and the floating of the other major currencies (see Table 5). The French commercial

6. *Although no specific time lag has been identified by the Fund, it is generally thought that it would take about two years for the parity changes to be fully reflected in changes in the trade balances.*

7. *This simple inverse relationship between a US devaluation and an appreciation by the other countries is valid only if it is assumed that the elasticity of demand (in value terms) is equal to 1.*

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Table 3

Alternative Targets for Trade Balance Changes

	Million US \$			
	<u>Case 1a</u>	<u>Case 1b</u>	<u>Case 2a</u>	<u>Case 2b</u>
Austria <u>a/</u>	-150	-150	-150	-150
Belgium-Luxembourg	-150	20	-440	-190
Canada	-500	-1,120	-980	-1,460
Denmark <u>a/</u>	320	320	320	320
France	0	-1,300	-510	-1,650
Italy	-520	130	-1,070	-260
Japan	-2,120	-2,520	-2,620	-2,860
Netherlands	250	-560	-80	-800
Norway <u>a/</u>	0	0	0	0
Sweden <u>a/</u>	80	80	80	80
Switzerland <u>a/</u>	-850	-850	-850	-850
United Kingdom	-550	210	-840	0
West Germany	-470	-190	-1,860	1,180
Rest of the world	-500	-500	-1,000	-1,000
United States	5,160	6,430	10,000	10,000

a. Targets indicated were not calculated but are CIA assumptions.

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Table 4

Required Parity Changes
from Pre - May 1971 Parities

	Percent			
	<u>Case 1a</u>	<u>Case 1b</u>	<u>Case 2a</u>	<u>Case 2b</u>
Belgium-Luxembourg	6.4	5.8	14.5	11.8
Canada	5.0	8.4	9.8	11.9
France	5.0	10.0	12.0	15.0
Italy	7.1	5.7	14.7	11.2
Japan	11.5	13.8	17.1	17.9
Netherlands	2.7	11.3	11.1	17.5
United Kingdom	6.2	5.1	11.7	9.2
West Germany	5.8	6.6	13.5	12.2
United States	0	0	0	0
Weighted average <u>a/</u>	6.2	8.5	12.2	12.8

a. Weighted by each country's relative share in the eight countries' total trade with the United States.

Table 5

Changes in Currency Values
That Have Already Taken Place
from Pre - May 1971 Parities a/

	Percent
Belgium-Luxembourg	7.0
Canada	7.5
France <u>b/</u>	0.5
Italy	2.1
Japan	8.9
Netherlands	8.1
United Kingdom	3.6
West Germany	10.1
Weighted average <u>c/</u>	6.9

a. In the New York market as of 12 October.

b. Commercial franc.

c. Weighted by each country's relative share in the eight countries' total trade with the United States.

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franc and the Italian lira are still trading, however, at levels substantially below the indicated required changes, largely because of government intervention in the market and pervasive exchange controls.

16. The pattern of required changes in parities for all four targets is different from the pattern reflected in the world's foreign exchange markets; in particular the required parity changes tend to be less dispersed. This reduced dispersion can probably be attributed to the strong linkages that exist between export markets, which are better reflected in the model than in the currency exchanges, and to the cyclical adjustments made in calculating the trade balance targets, which tend to reduce the large reported current account surpluses and deficits.

Parity Changes and the Current Account and Basic Balances

17. The IMF trade-flow model, and consequently the similar CIA model, permits the user to estimate - however poorly - the parity changes required to achieve certain trade balance targets. It fails, however, to relate these parity changes to changes in the other elements of the current account and basic balances. It seems reasonable to assume that the US balance of payments would be improved substantially more by a given foreign appreciation than is indicated merely by looking at the impact on merchandise trade. To the extent that this is true, parity changes required to achieve certain targets for changes in the current account or basic balances would be smaller than those required to secure equal value changes in the merchandise trade account.

18. Particular elements of the service account are very sensitive to parity changes. Expenditure on travel has been shown to be about as responsive to changes in exchange rates as is expenditure on tradable goods. Investment income in the near term, at least, is probably insensitive to parity changes, although reduced exports and higher imports may reduce foreign profitability and have a dampening effect on future investment income flows.

19. Elements of the capital account, particularly the level of direct investment, are also quite sensitive to parity changes. Production will become less attractive in an appreciating country because of the change in the exchange rate, and US-based companies will choose to "source" less of their output there. These "sourcing" decisions will tend to decrease the flow of new direct investment overseas. In contrast, portfolio investment and short-term capital flows are probably relatively insensitive to parity changes.

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The CIA trade-flow model, and the IMF model on which it is based, are designed to forecast the effect of changes in exchange rates on the pattern of trade balances. Both models are based on the modified-share approach – that is, apart from the effects of price changes, each exporting country is assumed to maintain its share of trade by value with each importing country.

Goods produced by a country are assumed to have special characteristics which differentiate them from similar goods produced elsewhere. World demand for the output of a single country is related to three things: to each importing country's total money expenditure on the good, to the share provided by the country in each market in the past, and to changes in prices. For each world demand equation there is a corresponding supply equation, relating the supply of a product to its price level in the producing country. Demand and supply are brought into a new equilibrium after changes in exchange rates by the effects of adjustments in prices and expenditures. The model relates changes in exchange rates to changes in trade flows, including changes in domestic production of tradable goods in each country.⁽⁹⁾

Two types of numerical inputs are required for the model: first, a matrix of trade data showing commodity flows within and from all countries or areas, and, second, a list of parameters indicating the strength of the causal linkages between changes in various flows, and between changes in prices and changes in flows.

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9. *The most recent version of the IMF model – not yet described in the literature – may have four commodity sectors per country rather than one sector, as in the Fund literature and in the CIA model. This disaggregation should not alter the results substantially as long as the weighted sum of the elasticities of demand for the sectors total one.*

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Data on foreign merchandise trade in the CIA model are in the form of a 15 x 15 matrix for 1966-68; the data are expressed in annual averages in millions of US dollars. The matrix also includes (along the diagonal) figures representing internal trade, as derived by a procedure developed by the Fund staff. While we do not know what assumptions the IMF is now making about parameter values, we have made the following assumptions.

a. The elasticity of demand (in value terms), for each country and product, equals unity -- this assumption is equivalent to the assumption that the elasticity of demand in quantity terms equals two. This is the same assumption reported by the Fund in the literature, and is supported by the empirical evidence.

b. The elasticity of supply equals infinity -- this assumption implies that changes in an individual producer's output have no effect on the world price.

c. The elasticity of substitution (between the merchandise of each pair of competing countries) equals three -- this assumption is the same as that reported by the Fund in the literature (the Fund literature also contains the assumption that the elasticity of substitution equals two), but there is no supporting or contradicting empirical evidence.

We have also assumed that there was no exogenous demand management -- that is, that countries whose trade balance deteriorated did not attempt to offset the deflationary effect on income. If they did, the parity changes required to achieve the trade balance targets would be smaller.

Sensitivity of the Model

While the trade data are quite solid, the problem is that the parameter values used have to be econometrically estimated or assumed. Clearly, caution must be exercised in using the model, if the results are sensitive to the particular parameter values chosen, and especially so if the parameter values themselves are subject to wide margins of error.

Unfortunately, the CIA trade-flow model and the IMF model on which it is based are very sensitive to the assumptions made about the parameter values. If, for example, it is assumed that the elasticity of demand (in value terms) is not equal to one, but rather is equal to eight-tenths -- an assumption also supported by empirical evidence -- then some of the parity adjustments required to achieve the trade balance changes suggested by the IMF are nearly doubled (see the tabulation). Similarly, if it is assumed that

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the elasticity of supply is ten rather than infinity, then the parity adjustments required to achieve the trade balance changes suggested by the IMF are increased by about 30%. If the elasticity of substitution is changed, from three to two – a small change in terms of the range of possible values for this elasticity – the parity adjustments required to achieve the trade balance changes suggested by the IMF are more than doubled.

		Required Parity Changes to Achieve Targeted Changes in the Trade Balance (in Percent From Pre - May 1971 Parities)		
	IMF Suggested Target for Change in the Trade Balance (Milli US \$)	Assuming that the Elasticity of Demand Equals 0.8	Assuming that the Elasticity of Supply Equals 10.0	Assuming that the Elasticity of Substitution Equals 2.0
Belgium-				
Luxembourg	-500	23.0	16.1	25.2
Canada	-1,500	15.9	14.6	21.9
France	500	17.5	7.9	12.9
Italy	-300	19.4	11.1	17.8
Japan	-2,700	23.8	20.1	31.1
Netherlands	300	15.6	5.9	10.1
United Kingdom	100	16.2	8.3	13.4
West Germany	-2,800	23.2	15.9	25.1
United States	8,000	0	0	0

Accuracy of the Model

The ultimate test of the model and of the parameter values chosen is the model's ability to forecast accurately the effect of changes in exchange rates on the pattern of trade balances. The Fund, in presenting the model, has offered no evidence that it adequately reflects reality and that it can, once reasonable parameter values are chosen, pass this test. On the basis of a preliminary examination of the model's ability to forecast trade balance changes using historical data,⁽¹⁰⁾ it appears that the predictive accuracy

10. Changes in export prices in 1966-67 and in 1969-70 were used as a proxy for changes in prices of tradable goods in those years, and changes in the cyclically adjusted trade balances for 1967-68 and 1969-70 were used to measure the impact on trade, implying a one-year lag and zero-year lag, respectively.

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is low. Using the parameter values previously assigned, the model was able to accurately forecast the direction of change in the trade balances in only slightly more than half the cases - a rather poor performance.

This test of the model is far from conclusive since the model's poor performance could have been caused by errors other than those arising in the specification of the model itself. In particular, the poor performance could have arisen from errors in the variables, the parameter values, or the lag assumptions.

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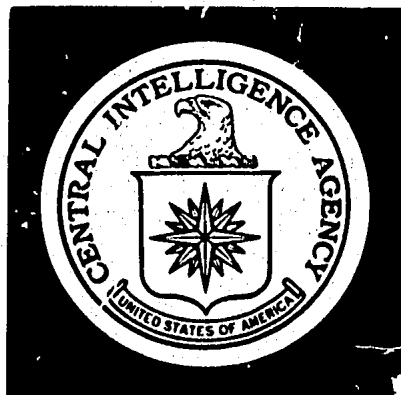
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**DIRECTORATE OF
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Intelligence Memorandum

The Economic Situation in Cambodia

August-September 1971

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ER IM 71-209
October 1971

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**CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
October 1971**

INTELLIGENCE MEMORANDUM

**THE ECONOMIC SITUATION IN CAMBODIA
AUGUST-SEPTEMBER 1971**

Highlights

1. Sufficient rice arrived from the northwest by government convoys to stabilize the price of first-grade rice in Phnom Penh during August and September. However, seasonal food prices in the capital increased as many items came into short supply. Domestically produced cement deliveries resumed, and this, supplemented by deliveries of US aid-financed imported cement, caused cement prices to drop by about 50%. On balance, however, prices generally trended upward during the two-month period.

2. For the first time since the war began in March 1970, currency in circulation decreased. The growth of demand deposits, which had been lagging behind that of currency in circulation, suddenly accelerated in August. The black market price of the US dollar fell to 165 riels as dollar trading declined.

3. The government has issued an economic mobilization plan to revise its monetary, fiscal, trade, and exchange systems in an effort to reduce budget deficits and curb inflation.

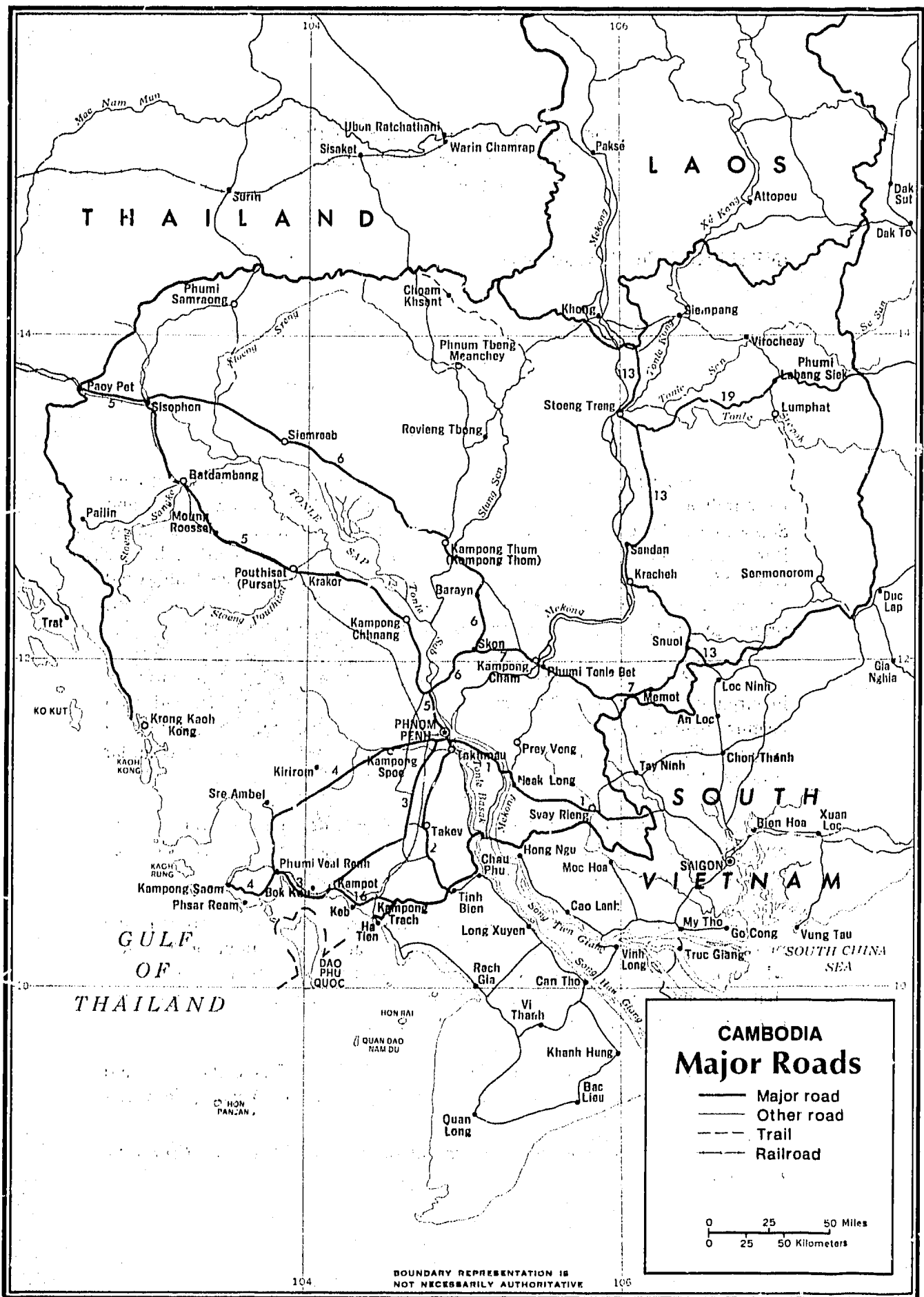
4. A flurry of late-season planting significantly improved the prospects for this winter's rice harvest, particularly in Batdambang Province, where most of the country's surplus is produced. Nevertheless, if reports that planting remains significantly below last year's level are correct, large rice imports will be needed a year from now.

5. Despite enemy interdictions to both Route 5 (see the map) and the Batdambang-Pouthisat (Pursat) railroad line in late August, deliveries

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to the capital by government rice convoys declined only slightly. There were no significant interdictions to Routes 1 and 4, and convoys moved goods from Saigon and Kompong Saom with little harassment.

6. Kampot's land routes to government-controlled areas remained interdicted for the fifth consecutive month. Both the economic situation and morale recently improved markedly, however, as seaborne transport moved out principal local products - cement and salt - to Kompong Saom and Phnom Penh and brought in supplies to replenish local stocks, which, in turn, resulted in lower prices.

7. While petroleum deliveries to Phnom Penh continued to improve significantly in August and early September, petroleum supplies were again disrupted on 20 September when enemy rocket and mortar fire hit Shell and Esso storage areas. The attack destroyed about one-third of reserve capacity and damaged an additional one-third. Military operations will not be affected, however, and civilian consumers expect only minor inconveniences.

8. Charts on money supply and prices; imports, exports, and gold and hard currency reserves; and government borrowing from the Banque Nationale du Cambodge follow the text.

DiscussionPrices

9. The prices of most commodities, reported by the US Embassy, continued to rise in Phnom Penh during August and September (see Table 1), with fluctuations reportedly due largely to the supply situation. Rice prices, however, were a notable exception. A steady flow of rice from Batdambang Province stabilized the price of first-grade rice at 11 riels per kilogram for most of August. In spite of an eight-day hiatus in government convoy shipments because of enemy interdictions to Route 5 in late August, adequate retail stocks kept the price from rising higher than 12 riels per kilogram during early September. The price of second-grade rice is controlled at 6.7 riels per kilogram.

10. Another factor contributing to the stability of rice prices was a noticeable change in quality. Merchants have been offsetting increased costs while maintaining politically safe prices by adding lower-cost broken grains to what is sold as first-grade rice. A recent Embassy check in Phnom Penh revealed that rice sold as "Number 1" contained more than 50% broken, compared to the usual 15% to 25%.

Table 1
Prices of Selected Commodities in Phnom Penh a/
1971

Commodity	Unit	Riels										Percent b/
		15 May	30 May	15 Jun	30 Jun	15 Jul	2 Aug	16 Aug	30 Aug	20 Sep	27 Sep	
Cereal												
White rice no. 1	Kilogram	6.5	8.8	9	N.A.	16	13.3	11	11	12	11	169
White rice no. 2	Kilogram	6.3	7.5	8	6.7	6.7	6.7	6.7	6.7	6.7	6.7	106
Fish												
Fresh-water	Kilogram	60	75	75	100	120	110	120	130	160	150	250
Salt-water	Kilogram	50	65	95	120	170	120	140	140	170	150	300
Dry	Kilogram	175	180	185	180	200	200	200	220	220	220	126
Meat and poultry												
Pork	Kilogram	150	180	200	200	240	240	200	240	260	250	167
Beef	Kilogram	90	90	100	120	140	140	130	140	160	150	167
Chicken	Kilogram	110	150	170	195	230	220	230	230	280	260	236
Eggs	Unit	6	6	6	7	9	8	8	9	9	9	150
Fruit												
Oranges	Dozen	100	110	90	120	130	110	140	120	120	110	110
Bananas	Bunch	15	15	15	16	25	20	30	30	40	25	167
Vegetables												
Tomatoes	Kilogram	8	20	45	35	40	30	45	40	70	60	750
Manioc	Kilogram	5	8	8	8	10	6	10	8	10	8	160
Green beans	Kilogram	30	40	40	35	35	25	35	40	70	50	167
Pepper	Kilogram	150	150	180	180	450	400	280	320	250	250	167
Nonfood												
Candles	Pair	8	--	--	--	25	30	40	40	45	45	563
Matches	Box	1.5	--	--	--	3	2	3	3	3	3	200
Cigarettes	Box	12	--	--	--	18	18	19	19	21	21	175
Cotton	Meter	18	--	--	--	80	75	55	55	55	55	306
Soap powder	Kilogram	90	--	--	--	220	190	180	180	140	120	133
Charcoal	Sack	215	--	--	--	250	265	265	265	265	280	130
Cement	50 kilograms	--	--	540 c/	600 d/	650 e/	840 f/	430	400	450	450	83
US dollars	Unit	180	200	210	350 g/	195	240	--	195 h/	190	165	92

a. Compiled from US Embassy sources.

b. 27 September prices expressed as a percentage of 15 May prices, with the exception of cement, which is a percentage of the 14 June price.

c. Price on 14 June.

d. Price on 2 July.

e. Price on 12 July.

f. Price on 26 July.

g. Price on 1 July.

h. Price on 29 August.

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11. Prices of other foods -- including such staples as fish, meat, and vegetables -- increased considerably in Phnom Penh, peaking around the third week of September and declining slightly thereafter. Fresh-water fish will be in short supply until the Mekong-Tonle Sap fishing season begins in November/December. Salt-water fish are supplied regularly by air, but transport costs have driven the prices of these less-preferred fish equal to or above those for fresh-water fish. Vegetables were reportedly in increasingly short supply toward the middle of September, and demand was accentuated by holiday buying for the Festival of the Ancestors. The shortage of vegetables is most likely due to seasonal factors, since most are supplied from nearby areas in Kandal Province. With prices of many foodstuffs falling in late September, it appears that the seasonal price increases may have run their course.

12. The resumption of deliveries of locally manufactured cement from the factory at Chakrei Ting (near Kampot)⁽¹⁾ dropped the price of cement in Phnom Penh from 840 riels per 50-kilogram sack in late July to 480 riels per sack by 9 August. With the delivery of 6,000 metric tons of Thai cement purchased through US aid, the retail price dropped to 400 riels per sack by the end of August and, since then, has been fluctuating with the availability of supplies. Transport costs continue to be the major price component -- the factory price of cement at Chakrei Ting is only 127 riels per sack.

13. The official Phnom Penh general price index, as reported by the National Institute of Statistics declined by 1% from July to August.⁽²⁾ This was owing largely to a slight decline in the Institute's food index because of lower rice and pork prices during much of August and a 5% decline in clothing prices. This slight decline, however, followed drastic increases during May-July, and the price level is up 45% from 1 January 1971 (see the chart on prices following the text).

14. The price of the US dollar on the Phnom Penh black market declined from 240 riels during the first week of August to 190 riels in early September. The latter price prevailed for three weeks until it dropped gradually to 165 riels in late September -- the lowest since early last May -- in the wake of almost two months of slow dollar trading. Despite the

1. *Shipments from the Chakrei Ting plant were disrupted by enemy interdictions to land routes last May and only recently have been resumed through seaborne shipments from Kampot.*

2. *The official Cambodian government price index, which reflects the cost of living of working class residents in Phnom Penh, based on market preferences in 1949, is heavily weighted by the prices of products -- rice, for example -- over which the government has the most control. It probably does not accurately indicate a realistic current cost of living, nor does it reflect changes in the prices of most commodities in the marketplace, and it is of limited analytical usefulness.*

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inflation-heightened demand for dollars, activity on the small, Chinese-operated currency market declined noticeably after Cambodia announced its intention to deal severely with those -- by implication, Chinese -- illegally profiteering from the current economic difficulties and demonstrated its seriousness by sentencing to death for "economic sabotage" two Chinese involved in illegally selling automobiles at inflated prices. Fearing police action, the black market currency dealers reportedly refused to trade in dollars between 8 and 16 August and, since then, apparently have been trading only in small quantities at less sensitive prices.

Money Supply

15. For the first time since the war began, the amount of currency in circulation showed a decrease -- from 14,432 million riels at the end of July to 14,251 million riels at the end of August -- although the total money supply (currency and demand deposits) increased, as shown in the accompanying tabulation.

Million Riels ^{a/}			
<u>Period</u>	<u>Money Supply</u>	<u>Currency in Circulation</u>	<u>Demand Deposits</u>
Mar 1970	8,845	6,299	2,546
Dec 1970	13,792	11,388	2,404
Jul 1971	18,900	14,432	4,468
Aug 1971	19,701	14,251	5,450

a.: 55.5 riels = US \$1.

16. The decrease in currency in circulation points up an important change in the composition of the money supply which, as a consequence of the government's deficit military spending, has been increasing since March 1970 at an average monthly rate of 5%. Demand deposits fell until around the end of 1970, but have since increased two and one-half times, including over 20% in August alone. The sharp increase in August is attributable primarily to rumors of a relaxation of procurement regulations of the US Commodity Import Program (CIP) -- a relaxation that would make it easier and more profitable for importers to participate in the US-financed program. In anticipation of the possible increase in commercial opportunities, the business community apparently transferred idle cash balances to more manageable checking accounts. There are indications that a contributing factor may be a growing confidence on the part of military personnel -- a major new class of "affluent" citizens -- that banks can be

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entrusted with their savings. Demand deposits now make up about the same share of the total money supply as before the war.

Economic Mobilization Progress

17. On 15 September, after much procrastination, the Cabinet approved a comprehensive reform program to ease the economic consequences of the government's inescapable deficit military spending, the war-caused transport disruptions and retardation of agricultural and industrial production, and -- with the exception of the United States -- a largely negative world response to requests for aid. The so-called "economic mobilization plan" embodies (a) monetary and fiscal measures to reduce the budget deficit and (b) a fundamental revision of the exchange and trade system to help improve the supply of essential imported commodities, provide goods to absorb the drastically increased money supply, and generate much-needed tax revenues. The reforms are largely those recommended by the International Monetary Fund last March and were scheduled for initiation during the last week of October.

18. The costs of maintaining an army, coupled with a flow of revenues that has fallen well below anticipated rates, have resulted in budget deficits averaging more than 1 billion riels per month for the first seven months of 1971. Civilian-oriented government expenditures have been reduced in an effort to limit spending, but military personnel expenditures have been permitted to rise well above authorized levels. Some shrinkage in the monthly deficits can be expected as tax revenues from goods imported under the CIP are realized in the months remaining, but even allowing for this, the budget deficit for 1971 will approach 10 billion riels, while the money supply will increase by some 65% or more by the end of the year.

19. The government has been unable to increase the supply of imported commodities to absorb this excess purchasing power and temper the ensuing inflation. There are few exports to augment dangerously low foreign exchange reserves -- down to only \$41.3 million at the end of July. To bolster its foreign exchange reserves and maintain some promise of stability, the government is presently seeking donor participation in an Exchange Support Fund (ESF), the key element in the mobilization plan. The ESF would depend upon cash grants from friendly countries for most of its initial capital. Foreign support for the ESF has been lukewarm but may be favorably influenced if the government is firm in seeing the politically unpalatable reform program through. In any case, the ESF will not come into being for some time. To temporarily relieve the foreign exchange shortage, the United States is considering -- among other measures -- an immediate cash grant. The grant would be funded from the fiscal year 1972 US AID program and conditioned on Cambodia's immediate action on at least a portion of the stabilization package.

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Rice

20. Rice was readily available at Phnom Penh retail outlets throughout August and September. The temporary disruption of government rice convoys from the northwest in late August and early September produced no signs of the panic buying that contributed to temporary shortages in June. Although wholesalers' stocks of the higher grades of rice most desired by Phnom Penh consumers declined sharply from early July through September, the disruption to shipments caused only a modest reduction in total stocks. Rice reserves in the hands of Phnom Penh wholesalers as of 10 September were not more than 10% below the level of early July, when the government instituted a system of truck convoys to bring rice to the capital from the northwest. Consumer confidence in continued supplies was further bolstered in early September by the announcement of a Japanese gift of 20,000 tons of rice to be delivered over the next two months.⁽³⁾ The forthcoming shipments from Japan and the capability of the government rice convoys to move supplies from producing regions of the country should preclude the threat of any serious shortages of rice in Phnom Penh before the next harvest begins in November-December. However, the level of rice deliveries from the northwest over the next few months may be as dependent on the government's pricing policy as on its ability to maintain security. The low prices offered by government buyers in Batdambang and depressed prices on the partly controlled Phnom Penh market have caused suppliers to hold back their stocks in anticipation of higher prices. Consequently, private truckers are said to have been having difficulty in finding rice to transport to the capital, and the government's stocks in Batdambang are rapidly being depleted. The government's rice price policy is now under study, and, according to Sok Chhong (Second Deputy Prime Minister and Minister of Finance), some positive action can be expected soon.

21. Expectations of higher prices and confidence in the government's rice convoys apparently has stimulated a flurry of activity among Batdambang ricegrowers in the final weeks of the planting season for the rice crop due to be harvested at the end of the year. Although mid-July reports indicated that planting would be down 50% from the previous year, mid-September reports indicated that planting would probably amount to 60%-70% of last year's level. Similar late increases in planting activity were reported from most of the other major rice-growing areas still under government control.⁽⁴⁾ Nevertheless, Cambodia can ill afford a large decline

3. For domestic political reasons, the Japanese will deliver the rice through Red Cross channels. In Cambodia it will be sold by the Cambodian Red Cross, which will use the proceeds for humanitarian assistance programs.

4. The relatively sparse information on rice planting in Communist-controlled areas indicates that planting will approximate last year's level.

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in rice cultivation and, assuming that the reports are accurate, will be forced to import large quantities of rice during 1972.

22. Illicit movements of Cambodian rice into South Vietnam are reported to have been greatly stimulated by the sharp dips in the value of the riel that occurred in June and July. This, coupled with numerous reports of rice thefts by Vietnamese troops in Cambodian border areas and knowledge that the South Vietnamese military base on the Mekong at Neak Luong has become an active center for illegal trade, led some prominent Phnom Penh rice merchants to speculate recently that illegal exports of Cambodian rice to South Vietnam this past summer may have exceeded 100,000 tons. Their estimates, however, almost certainly are grossly exaggerated. Data compiled by the US Embassy in Saigon reflect none of the abnormalities in Vietnamese markets that rice movements of that magnitude could be expected to generate. Furthermore, the removal of such a large volume of rice from Cambodia's populous southeastern provinces probably would have created widespread shortages, whereas no serious shortages have been reported.

Land Transport

23. The government's rice convoys from Batdambang were disrupted for the first time since their initiation in early July when the enemy destroyed a concrete bridge on Route 5, one kilometer southeast of Muong Roessei, on 25 August. Repairs were not completed until 8 September. During the interval, the interdiction was not bypassable, because the railroad, which parallels Route 5 from Moung Roessei to Pouthisat, (Pursat) also was inoperable owing to enemy interdictions.⁽⁵⁾ Additionally, shipments from the Pouthisat-Kampong Chhnang areas were disrupted during the period 28 August-2 September because an enemy attack on a bridge south of Kampong Chhnang temporarily restricted its use to light vehicles. Route 5 remained open the last three weeks of September.

24. Although the disruption caused an eight-day hiatus in convoys that had been operating every two to three days, the monthly volume of traffic does not appear to have been seriously affected. The volume of

5. *Rail service between Batdambang and Pouthisat was disrupted during most of August and September. A derailment caused by an enemy mine on 30 July in the vicinity of Phnom Thippadei, about 25 kilometers south of Batdambang, interrupted service for several days. Later, through a combination of a mine-caused derailment and enemy removal of track, both in the vicinity of Moung Roessei, operations were disrupted from 12 August to 8 September. The removal of more track on 16 September and the destruction of a bridge 8 kilometers northwest of Moung Roessei on 21 September closed the line for the rest of the month.*

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preferred grades of edible rice delivered in August was only a few hundred tons below the levels of July and September, as shown in Table 2.

Table 2

Government Convoys
from Batdambang to Phnom Penh

	Jul	Aug	Sep
Convoys	10	10	11
Transport vehicles			
Trucks	1,125	1,261	1,320
Trailers	444	434	386
	Metric Tons		
Volume of rice car- goes <u>a/</u>	14,260	11,660	N.A.
Grades No. 1 and No. 2	10,510	9,150	9,950 <u>b/</u>
Paddy	30	60	N.A.
Cargo rice	250	420	N.A.
Flour	3,470	2,030	N.A.

a. Other products carried included vegetables, jute sacks, cotton, livestock, and fuel.

b. This figure from another source may not be completely comparable with data in columns 1 and 2.

25. Route 1 continued to sustain a large volume of civilian and military shipments in August and September, with only one incident of enemy harassment reported.⁽⁶⁾ Traffic included convoys of tank trucks about every fifth day delivering aviation gas from Saigon to Phnom Penh at the rate of about 750 tons a month. A convoy of 134 Australian-made trucks financed under the US aid program arrived safely early in August.

6. On 23 August, an enemy ambush nearly 25 kilometers west of Sray Rieng resulted in two soldiers killed, two wounded, six civilians captured, and one truck damaged.

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26. Despite frequent enemy harassment of bridges and troops guarding them along Route 4, especially in the vicinity of Veal Renh where Route 3 from Kampot joins Route 4, there were no significant enemy interdictions, and vehicle losses to enemy rocket fire amounted to only one in August and two in September. Two convoys made round trips between Phnom Penh and the port at Kompong Saom in both August and September, the same number as in July. On 29 August the route from the port was negotiated by the largest convoy to date, consisting of 221 trucks and 24 trailers. Cargoes delivered to Phnom Penh included Bailey bridging, prefabricated houses, road rollers, French ambulances, tractor and auto parts, beer, salt, and military supplies.

27. All land routes between government-controlled areas and the port city of Kampot remained interdicted during August and September. The city's access to supplies from surrounding areas was further impaired by the destruction on 18 August of a four-span bridge at Kbal Romeas, 5 kilometers east of Kampot on Route 16 (see the photograph), but ferries were operating at this site and also in the center of the city, where the bridge connecting the city's eastern and western sections was still under repair.



Bridge on Route 16, east of Kampot. Destroyed by sappers on 18 August.

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28. Nevertheless, the economic situation in Kampot improved sharply in August, as procedures were developed for shipping the area's major products -- salt and cement -- by sea to Kompong Saom and Phnom Penh.⁽⁷⁾ The high prices brought by these products, coupled with the fact that an inflow of rice released from warehouses at Kompong Saom had brought relief from the high prices resulting from earlier shortages, contributed to the best state of popular morale in several months. Shopkeepers and restaurant operators were profiting from greatly improved military discipline imposed by a new military commander. No recent incidents of soldiers stealing from shopkeepers or refusing to pay for meals have been reported, and shops and restaurants are now open afternoons -- when many soldiers are off duty -- for the first time in several months. A further improvement in the economic situation in Kampot was brought about in early September, when aggressive Cambodian army (FANK) clearing operations along Route 16 reestablished the highway link with Kompong Trach, a center for local trade with South Vietnam.

Mekong Shipping

29. The cost of Phnom Penh's maritime trade is likely to be significantly reduced with the implementation of recent Vietnamese promises to coordinate the schedules of merchant ship convoys transiting the Vietnamese portion of the Mekong with those of convoys operating between the Vietnamese border and Phnom Penh. Heretofore, the lack of coordination sometimes forced ships to waste as much as two weeks -- with operating costs running to thousands of dollars per day -- awaiting the formation of convoys. Consequently, delivery times have been slow and unpredictable, causing frustration for shippers and shipowners alike. Although the Vietnamese have yielded to pressures for improved scheduling, they remain adamantly opposed to ships transiting the Mekong without naval escort for fear that such a relaxation of control could lead to offloading en route of contraband, possibly for the enemy.

30. Responsibility for the security of convoys operating between Phnom Penh and the Vietnamese border is soon to be transferred to the Cambodian navy. The initiative for this action -- which is unrelated to the promised coordination of convoy scheduling -- was taken by the FANK General Staff, which wishes to effect the transfer as soon as the required Cambodian staffs are formed and trained, hopefully before the end of October.

7. Large stocks of both were reported on hand: 130,000 tons of salt were reported ready for shipment, and the cement plant's 1,500-ton-capacity warehouse reportedly was nearly full so that production had been curtailed to a level commensurate with local needs.

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31. The Cambodians, however, lack not only the expertise but also the strength of the Vietnamese naval and marine elements they propose to relieve. They can employ less than half the number of escort craft currently used by the Vietnamese, and no early improvement is foreseen in their inventory of patrol craft. For these reasons, convoy security under Cambodian command is likely to decline.

32. A recent step-up in Communist attacks on Mekong shipping may, however, cause the Cambodians to have second thoughts on the matter. Of the six merchant ship convoys that sailed up the Mekong in August and September, five were attacked by B-40 rockets and machinegun fire. Although only four ships - including two tankers - were hit and only minor damage resulted, the frequency of attacks on the heavily guarded convoys indicates a renewed enemy determination.⁽⁸⁾

Petroleum

33. Petroleum deliveries to Phnom Penh remained unusually large, with some 17,600 tons arriving via the Mekong in August and 16,300 tons in September. The effectiveness of the many newly chartered petroleum carriers placed in service in June was reflected in deliveries averaging 16,500 tons a month since 1 June, compared with the approximately 10,500-ton average of the preceding four months. The increased deliveries boosted the utilization of Phnom Penh's 7.5-million-gallon storage capacity from only 13% on 3 June to 36% on 3 September.

34. However, the rapidly improving petroleum situation in Phnom Penh was again disrupted on 20 September when enemy infiltrators directed rocket and mortar fire into the Shell and Esso petroleum tank farms situated on the Tonle Sab River just north of the city. Nearly 1.3 million gallons of products and 31% of the oil companies' storage capacity were destroyed, and an additional 32% of their capacity sustained varying degrees of damage. Much of the damaged capacity can be repaired within a few months. A chartered tanker is being employed as a floating reserve until barges can be rented for that purpose. These measures are expected to permit a level of deliveries sufficient to maintain consumption at the current level of nearly 15,000 tons - about 4 million gallons - a month. As a precautionary

8. *In addition to the attacks by fire, the enemy on 12 August employed a floating mine to sink a barge anchored at the Neak Luong military base.*

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measure, however, rationing of sales to civilian consumers was immediately reinstituted to ensure that requirements of the military and essential public services will be met.⁽⁹⁾

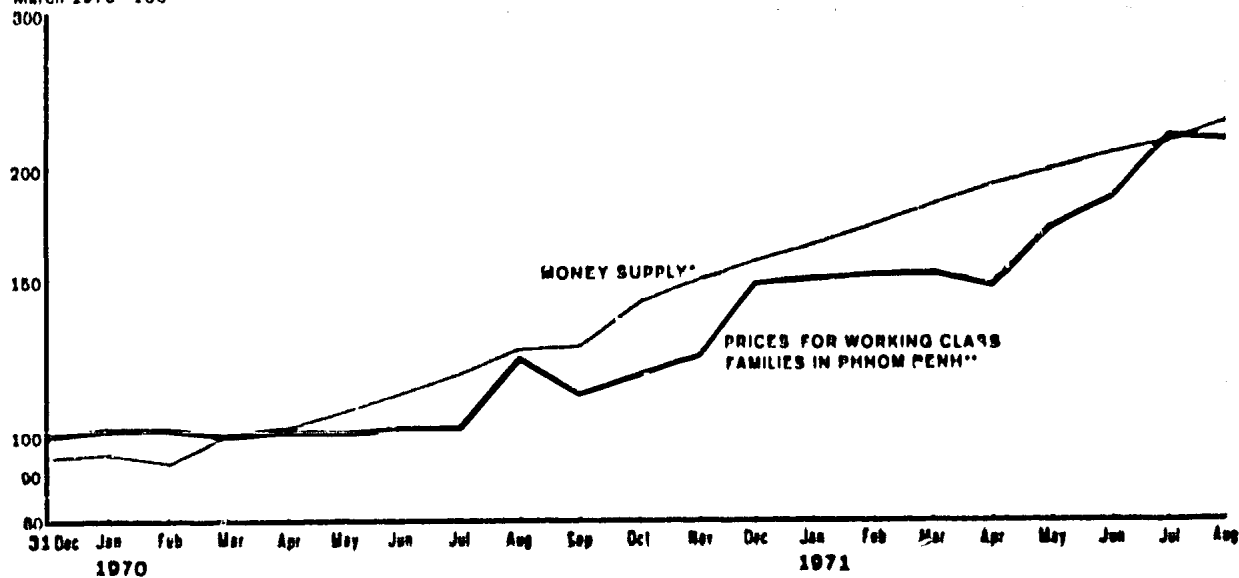
35. With a surplus of petroleum carriers available, the Cambodians began, in August, sending some of them to Kompong Saom to load petroleum products not damaged by the early March fire at the refinery. Some 5,500 tons of these products -- mostly diesel oils -- were delivered to Phnom Penh between 23 August and 13 September. The bulk of Phnom Penh's petroleum supplies, however, are still being transshipped from the large Vietnamese depot at Nha Be, near Saigon.

9. *Phnom Penh's petroleum reserves are stored at facilities owned by Caltex, Esso, and Shell. Additional reserves are maintained at the installations of major consumers, as shown below:*

<i>Central Petroleum Reserve Capacity</i>			<i>Other Major Reserve Capacity</i>		
	<i>Cubic Meters</i>	<i>Thousand Gallons</i>		<i>Cubic Meters</i>	<i>Thousand Gallons</i>
Total	28,510	7,531	Total	7,845	2,073
<i>Caltex</i>	<i>1,753</i>	<i>463</i>	<i>Prek Phnau (military)</i>	<i>1,670</i>	<i>441</i>
<i>Esso</i>	<i>11,744</i>	<i>3,102</i>	<i>Pochantong (airfield)</i>	<i>275</i>	<i>73</i>
<i>Shell</i>	<i>15,013</i>	<i>3,966</i>	<i>Powerplant No. 1</i>	<i>900</i>	<i>238</i>
			<i>Powerplant No. 2</i>	<i>5,000</i>	<i>1,321</i>

CAMBODIA: Indices of Money Supply and Prices, 1970 to August 1971

March 1970 = 100



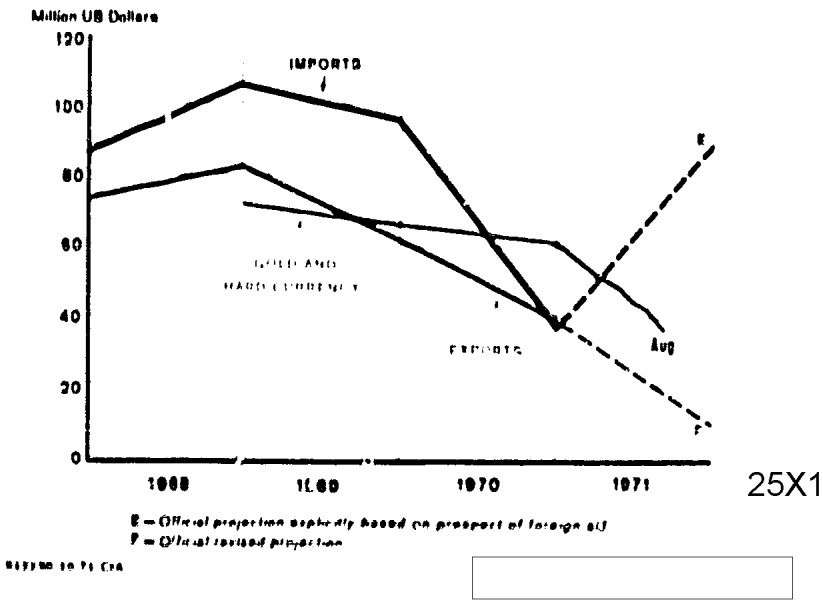
*Excluding cash in the banks and small sums on the current account of the general treasury

**As reported by the Cambodian National Institute of Statistics

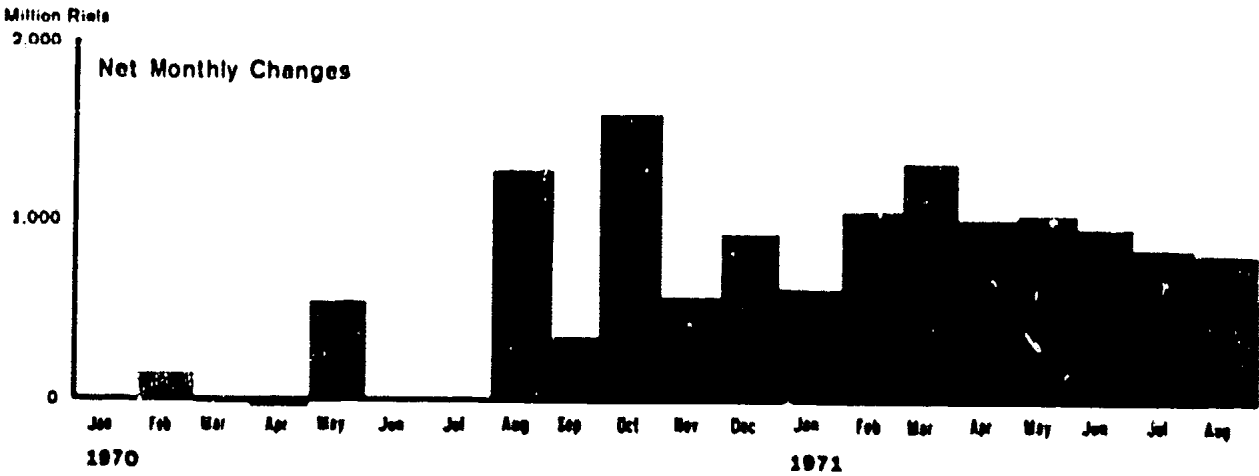
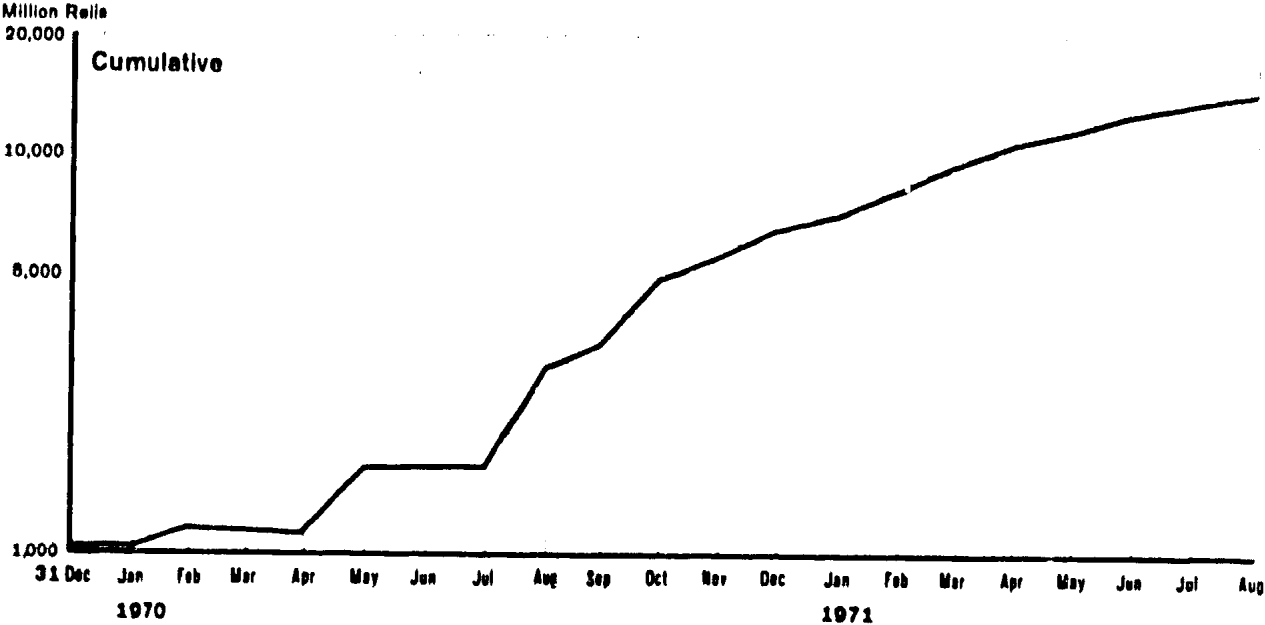
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CAMBODIA: Imports, Exports, and Gold and Hard Currency Holdings



**CAMBODIA: National Domestic Debt
1970 to August 1971**



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